National Aeronautics and Space Administration

1983-2017 TRACKING AND DATA RELAY SATELLITE

FOUR DECADES OF LAUNCHES












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LAUNCH

Established in 1973, the Tracking and Data Relay Satellite (TDRS) project aims to provide continuous, around-the-clock communications services to NASA's most critical low-Earth-orbiting missions. Launches of TDRS spacecraft began in the 1980s and have continued through the new millennium. Most of these satellites are still operational today, and a number of them are exceeding their design life. Today, the TDRS project is in the midst of launching the third generation of TDRS, known as K, L and M.

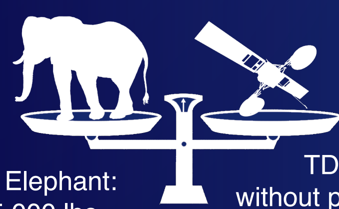
The first generation of TDRS satellites, A through G, were carried to space aboard the Space Shuttle from 1983-1995. The Space Shuttle Program was made up of manned, partially reusable low-Earth-orbital spacecraft.

The second generation of TDRS satellites, H, I, and J, were launched aboard Atlas IIA launch vehicles from 2000 to 2002. Atlas IIA vehicles were unmanned expendable launch vehicles used to propel spacecraft into low-Earth and geosynchronous orbits.

The third generation of Tracking and Data Relay Satellites, K, L, and M, are launching aboard Atlas V launch vehicles, which are produced and built by Lockheed Martin. In planning, TDRS-K, L, and M requirements were sent to the United Launch Alliance (ULA) to identify the best expendable launch vehicle to get the spacecraft to its geosynchronous orbit. As a result, the Atlas V was chosen. TDRS-K launched in 2013, and TDRS-L launched in 2014. TDRS-M will launch in 2017.

HOW TALL?

HOW HEAVY?



DEPLOY

Shortly after booster separation, the fairing separates and the Centaur engines ignites, driving TDRS into a geosynchronous transfer orbit. Deployments start on the spacecraft quickly following the detachment of the Centaur engine when the single-access antennas are unfurled. Over the next 11 days, TDRS propels itself to geosynchronous orbit before beginning the rest of the deployments. First, one of the solar arrays deploys to power all of the onboard electronic systems. Next, the single-access antennas are deployed and locked into place. The second solar array is then deployed, enabling the omni antenna to deploy and the space-to-ground link antenna to lock into place.

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